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**Number of Patents:** 8 **Number of Countries:** 6 **Number of Legal Status Entries:** 19  
**Patent Basic (No,Kind,Date):** FI 199602381 D0 19960607

**Datan pakkaaminen tietoliikenneyhteydellä (Finnish)**  
**Kompressering av data pa en kommunikationsflrbindelse (Swedish)**

**Patent Assignee:** NOKIA TELECOMMUNICATIONS OY (FI)  
**Author (Inventor):** KARI HANNU (FI)  
**Record Type:** Legal Status; Abstract; Cited Refs

**Patent Family**

Patent Number	Kind	Date	Application Number	Kind	Date	Update
AU 199729656	A	19980107	AU 199729656	D	19970603	199817
EP 898825	A1	19990303	EP 1997924060	A	19970603	199908
FI 199602381	D0	19960607	FI 19962381	A	19960607	199639 (B)
FI 199602381	A	19971208	FI 19962381	A	19960607	199815
JP 2000513519	T	20001010	JP 1998501239	T	19970603	200049
JP 3902235	B2	20070404	JP 1998501239	T	19970603	200720
US 6434168	B1	20020813	US 1998202203	A	19981207	200233
WO 1997048212	A1	19971218	WO 1997FI345	A	19970603	199801

**Priority Data**

Application Number	Kind	Date
FI19962381	A	19960607
WO1997FI345	A	19970603

**AUSTRALIA (AU)****Australia (AU) Patent(s):**

Patent (Number,Kind,Date): AU 199729656 A 19980107  
 Data compression on a data connection (English)  
 Patent Assignee: NOKIA TELECOMMUNICATIONS OY  
 Author (Inventor): KARI HANNU H  
 Priority (Number,Kind,Date): FI 19962381 A 19960607; WO 1997FI345 A 19970603 \*  
 Applic (Number,Kind,Date): AU 199729656 D 19970603  
 ECLA: H03M-007/30; H04L-012/56B; H04L-029/06; H04L-029/06C5; H04Q-007/22S3; H04W-028/06; T04L-029:06P; T04Q-007:22S3P  
 IPC + Level Value Position Status Version Action Source Office

v. 6 main: H04L-012/56  
 v. 6 : H04Q-007/30  
 v. 6 : H04Q-007/32  
 v. 8 adv : H03M-0007/30 A I R 20060101 20051008 M EP  
 v. 8 adv : H04L-0012/56 A I R 20060101 20051008 M EP  
 v. 8 adv : H04L-0029/06 A I R 20060101 20051008 M EP  
 v. 8 adv : H04W-0028/06 A I R 20090101 20090105 M EP  
 v. 8 core: H03M-0007/30 C I R 20060101 20051008 M EP  
 v. 8 core: H04L-0012/56 C I R 20060101 20051008 M EP  
 v. 8 core: H04L-0029/06 C I R 20060101 20051008 M EP  
 v. 8 core: H04W-0028/02 C I R 20090101 20090105 M EP

Date of Availability: 19980107 Claims only available

Language of Document: English

Update Week: 200905 (First Week Added: 199817)

## EUROPEAN PATENT OFFICE (EP)

### European Patent Office (EP) Patent(s):

Patent (Number,Kind,Date): EP 898825 A1 19990303

DATA COMPRESSION ON A DATA CONNECTION (English) COMPRESSION DE DONNEES LORS D'UNE CONNEXION DE DONNEES (French) DATENKOMPRESSION AUF EINER DATUMVERBINDUNG (German)

Patent Assignee: NOKIA TELECOMMUNICATIONS OY (FI)

Author (Inventor): KARI HANNU H (FI)

Priority (Number,Kind,Date): FI 19962381 A 19960607; WO 1997FI345 A 19970603 \*

Applic (Number,Kind,Date): EP 1997924060 A 19970603

Designated States: C: AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

ECLA: H03M-007/30; H04L-012/56B; H04L-029/06; H04L-029/06C5; H04Q-007/22S3; H04W-028/06; T04L-029/06P; T04Q-007/22S3P

IPC + Level Value Position Status Version Action Source Office

v. 6 main: H04L-012/56

v. 6 : H04Q-007/30

v. 6 : H04Q-007/32

v. 8 adv : H03M-0007/30 A I R 20060101 20051008 M EP

v. 8 adv : H04L-0012/56 A I R 20060101 20051008 M EP

v. 8 adv : H04L-0029/06 A I R 20060101 20051008 M EP

v. 8 adv : H04W-0028/06 A I R 20090101 20090105 M EP

v. 8 core: H03M-0007/30 C I R 20060101 20051008 M EP

v. 8 core: H04L-0012/56 C I R 20060101 20051008 M EP

v. 8 core: H04L-0029/06 C I R 20060101 20051008 M EP

v. 8 core: H04W-0028/02 C I R 20090101 20090105 M EP

Date of Availability: 19990303 Examined printed without grant

Language of Document: English; French; German

Update Week: 200905 (First Week Added: 199908)

### European Patent Office (EP) Legal Status

Number	Type	Date	Code	Text
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EP 898825 A1		19990303	EP AK	DESIGNATED CONTRACTING STATES:
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(BENANNTE VERTRAGSSTAATEN)

Designated States: AT BE CH DE DK ES FI FR GB GR IE IT

			LI LU MC NL PT SE
			Last Revised by EPO: 20030101
			Update Week: Backfile
EP 898825 A1	19990303 EP 17P (+)		REQUEST FOR EXAMINATION FILED (PRUEFUNGSANTRAG GESTELLT)
			Effective Date: 19981127
			Last Revised by EPO: 20030101
			Update Week: Backfile
EP 898825 A1	20000105 EP RAP1		TRANSFER OF RIGHTS OF AN EP APPLICATION (ANMELDER UEBERTRAGUNG (KORR.))
			Assignee(s): NOKIA NETWORKS OY
			Last Revised by EPO: 20030101
			Update Week: Backfile
EP 898825 A1	20020313 EP RAP1		TRANSFER OF RIGHTS OF AN EP APPLICATION (ANMELDER UEBERTRAGUNG (KORR.))
			Assignee(s): NOKIA CORPORATION
			Last Revised by EPO: 20030101
			Update Week: Backfile
EP 898825 A1	20070103 EP 17Q (+)		FIRST EXAMINATION REPORT (ERSTER PRUEFUNGSBESCHIED)
			Effective Date: 20061127
			Update Week: 200701
EP 898825 A1	20080220 EP RAP1		TRANSFER OF RIGHTS OF AN EP APPLICATION (ANMELDER UEBERTRAGUNG (KORR.))
			Assignee(s): NOKIA SIEMENS NETWORKS OY
			Update Week: 200808
EP 898825 A1	20091125 EP 18D (-)		DEEMED TO BE WITHDRAWN (ALS ZURUECKGENOMMEN GELTEN)
			Effective Date: 20000604
			Update Week: 200948
EP 898825 A1	20091202 EP R18D (-)		EP-APPLICATION DEEMED TO BE WITHDRAWN: (CORRECTION)
			(ALS ZURUECKGENOMMEN GELTEN (KORR.))
			Effective Date: 20090604
			Update Week: 200949

### European Patent Office (EP) Cited Reference(s):

EP 898825 A1 19990303 REFERENCES:

SEA See references of WO 9748212A1

### FINLAND (FI)

#### Finland (FI) Patent(s):

Patent (Number,Kind,Date): FI 199602381 D0 19960607

Datan pakkaaminen tietoliikenneyhteydellä (Finnish) Kompressering av data pa en kommunikationsforbindelse (Swedish)

Patent Assignee: NOKIA TELECOMMUNICATIONS OY (FI)

Author (Inventor): KARI HANNU (FI)

Priority (Number,Kind,Date): FI 19962381 A 19960607

Applic (Number,Kind,Date): FI 19962381 A 19960607  
ECLA: H03M-007/30; H04L-012/56B; H04L-029/06; H04L-029/06C5; H04Q-007/22S3; H04W-028/06; T04L-029:06P; T04Q-007:22S3P  
IPC + Level Value Position Status Version Action Source Office  
v. 6 main: H04L  
v. 8 adv : H03M-0007/30 A I R 20060101 20051008 M EP  
v. 8 adv : H04L-0012/56 A I R 20060101 20051008 M EP  
v. 8 adv : H04L-0029/06 A I R 20060101 20051008 M EP  
v. 8 adv : H04W-0028/06 A I R 20090101 20090105 M EP  
v. 8 core: H03M-0007/30 C I R 20060101 20051008 M EP  
v. 8 core: H04L-0012/56 C I R 20060101 20051008 M EP  
v. 8 core: H04L-0029/06 C I R 20060101 20051008 M EP  
v. 8 core: H04W-0028/02 C I R 20090101 20090105 M EP  
Language of Document: Finnish; Swedish  
Update Week: 200905 (First Week Added: 199639)

Patent (Number,Kind,Date): FI 199602381 A 19971208  
Datan pakkaaminen tietoliikenneyhteydellä (Finnish) Kompressering av data pa en kommunikationsforbindelse (Swedish)  
Patent Assignee: NOKIA TELECOMMUNICATIONS OY (FI)  
Author (Inventor): KARI HANNU (FI)  
Priority (Number,Kind,Date): FI 19962381 A 19960607  
Applic (Number,Kind,Date): FI 19962381 A 19960607  
ECLA: H03M-007/30; H04L-012/56B; H04L-029/06; H04L-029/06C5; H04Q-007/22S3; H04W-028/06; T04L-029:06P; T04Q-007:22S3P  
IPC + Level Value Position Status Version Action Source Office  
v. 6 main: H04L-025/49  
v. 8 adv : H03M-0007/30 A I R 20060101 20051008 M EP  
v. 8 adv : H04L-0012/56 A I R 20060101 20051008 M EP  
v. 8 adv : H04L-0029/06 A I R 20060101 20051008 M EP  
v. 8 adv : H04W-0028/06 A I R 20090101 20090105 M EP  
v. 8 core: H03M-0007/30 C I R 20060101 20051008 M EP  
v. 8 core: H04L-0012/56 C I R 20060101 20051008 M EP  
v. 8 core: H04L-0029/06 C I R 20060101 20051008 M EP  
v. 8 core: H04W-0028/02 C I R 20090101 20090105 M EP  
Date of Availability: 19971208 Unexamined not printed without grant  
Language of Document: Finnish; Swedish  
Update Week: 200905 (First Week Added: 199815)

## JAPAN (JP)

### Japan (JP) Patent(s):

Patent (Number,Kind,Date): JP 2000513519 T 20001010  
(No title available)  
Priority (Number,Kind,Date): FI 19962381 A 19960607; WO 1997FI345 A 19970603 \*  
Applic (Number,Kind,Date): JP 1998501239 T 19970603  
ECLA: H03M-007/30; H04L-012/56B; H04L-029/06; H04L-029/06C5; H04Q-007/22S3; H04W-028/06; T04L-029:06P; T04Q-007:22S3P  
IPC + Level Value Position Status Version Action Source Office  
v. 7 main: H03M-007/30  
v. 7 : H04L-012/56

v. 7 : H04Q-007/38

v. 8 adv : H03M-0007/30 A I R 20060101 20051008 M EP

v. 8 adv : H04L-0012/56 A I R 20060101 20051008 M EP

v. 8 adv : H04L-0029/06 A I R 20060101 20051008 M EP

v. 8 adv : H04W-0028/06 A I R 20090101 20090105 M EP

v. 8 core: H03M-0007/30 C I R 20060101 20051008 M EP

v. 8 core: H04L-0012/56 C I R 20060101 20051008 M EP

v. 8 core: H04L-0029/06 C I R 20060101 20051008 M EP

v. 8 core: H04W-0028/02 C I R 20090101 20090105 M EP

Date of Availability: 20001010 Unexamined printed without grant

Language of Document: Japanese

Update Week: 200905 (First Week Added: 200049)

Patent (Number,Kind,Date): JP 3902235 B2 20070404

(No title available)

Priority (Number,Kind,Date): FI 19962381 A 19960607; WO 1997FI345 A 19970603 \*

Applic (Number,Kind,Date): JP 1998501239 T 19970603

ECLA: H03M-007/30; H04L-012/56B; H04L-029/06; H04L-029/06C5; H04Q-007/22S3; H04W-028/06; T04L-029:06P; T04Q-007:22S3P

IPC + Level Value Position Status Version Action Source Office

Orig adv : H03M-0007/30 A I F B 20060101 20070315 H JP

Orig adv : H04B-0007/26 A I L B 20060101 20070315 H JP

Orig adv : H04L-0012/56 A I L B 20060101 20070315 H JP

v. 8 adv : H04L-0029/06 A I R 20060101 20051008 M EP

v. 8 adv : H04W-0028/06 A I R 20090101 20090105 M EP

Orig core: H03M-0007/30 C I F B 20060101 20070315 H JP

Orig core: H04B-0007/26 C I L B 20060101 20070315 H JP

Orig core: H04L-0012/56 C I L B 20060101 20070315 H JP

v. 8 core: H04L-0029/06 C I R 20060101 20051008 M EP

v. 8 core: H04W-0028/02 C I R 20090101 20090105 M EP

Date of Availability: 20070404 Printed with grant

Language of Document: Japanese

Update Week: 200905 (First Week Added: 200720)

## UNITED STATES (US)

### United States (US) Patent(s):

Patent (Number,Kind,Date): US 6434168 B1 20020813

Data compression on a data connection (English)

Patent Assignee: NOKIA TELECOMMUNICATIONS OY (FI)

Author (Inventor): KARI HANNU (FI)

Priority (Number,Kind,Date): FI 19962381 A 19960607; WO 1997FI345 A 19970603 \*

Applic (Number,Kind,Date): US 1998202203 A 19981207

National Class: 370521; X348568

ECLA: H03M-007/30; H04L-012/56B; H04L-029/06; H04L-029/06C5; H04Q-007/22S3; H04W-028/06; T04L-029:06P; T04Q-007:22S3P

IPC + Level Value Position Status Version Action Source Office

v. 7 main: H04J-003/00

v. 8 adv : H03M-0007/30 A I R 20060101 20051008 M EP

v. 8 adv : H04L-0012/56 A I R 20060101 20051008 M EP

v. 8 adv : H04L-0029/06 A I R 20060101 20051008 M EP

v. 8 adv : H04W-0028/06 A I R 20090101 20090105 M EP  
 v. 8 core: H03M-0007/30 C I R 20060101 20051008 M EP  
 v. 8 core: H04L-0012/56 C I R 20060101 20051008 M EP  
 v. 8 core: H04L-0029/06 C I R 20060101 20051008 M EP  
 v. 8 core: H04W-0028/02 C I R 20090101 20090105 M EP

Date of Availability: 20020813 Printed with grant

Language of Document: English

Update Week: 200905 (First Week Added: 200233)

### United States (US) Abstract(s):

US 6434168 B1 20020813 (English)

The invention relates to compressing and transmitting data on a connection between two parties in a telecommunication system comprising at least one slow transmission channel, such as the air interface Um of the radio network. The data to be transmitted are assembled into frames (F) comprising a header section (1) and a data section (2). Prior to transmission, at least the header (1) or the data section (2) of at least some of the frames (F) are compressed. The transmitting party has available at least two different compression algorithms and the receiving party has available at least two different decompression algorithms. The transmitting party compresses at least one section (1, 2) of at least some of the frames (F) with at least two different algorithms, and transmits the frame (F) compressed with the algorithm that produced the best compression ratio.

### United States (US) Legal Status

Number	Type	Date	Code	Text
US 6434168 B1		19981207	US	ASSIGNMENT
			AS	Assignee(s): NOKIA TELECOMMUNICATIONS OY, FINLAND
				Effective Date: 19981111
				Notes: ASSIGNMENT OF ASSIGNORS
				INTEREST;ASSIGNOR:KARI,
				HANNU;REEL/FRAME:010009/0445
				Update Week: 200920
US 6434168 B1		20080423	US	ASSIGNMENT
			AS	Assignee(s): NOKIA SIEMENS NETWORKS OY, FINLAND
				Effective Date: 20070913
				Notes: ASSIGNMENT OF ASSIGNORS
				INTEREST;ASSIGNOR:NOKIA
				CORPORATION;REEL/FRAME:020837/0726
				Update Week: 200906

### United States (US) Cited Reference(s):

US 6434168 B1 20020813 CITED PATENTS:

SEA US 5867114 A 19990202  
 SEA US 5884269 A 19990316  
 SEA US 5933104 A 19990803  
 SEA US 5956504 A 19990921  
 SEA US 5974179 A 19991026  
 SEA US 5974471 A 19991026  
 SEA US 6002719 A 19991214  
 SEA US 6151627 A 20001121  
 SEA US 6175386 B1 20010116  
 APP US 5396228 A 19950307

APP US 5452287 A 19950919

APP EP 595406 A1 19940504

APP WO 1994014273 A1 19940623

APP WO 1995002873 A1 19950126

US 6434168 B1 20020813 REFERENCES:

APP V. Jacobson, Compressing TCP/IP Headers for Low-Speed Serial Links (Request for Comments: 1144) (Feb. 1990); pp 1-25.

## WORLD INTELLECTUAL PROPERTY ORGANIZATION PCT (WO)

### World Intellectual Property Organization PCT (WO) Patent(s):

Patent (Number,Kind,Date): WO 1997048212 A1 19971218

DATA COMPRESSION ON A DATA CONNECTION (English) COMPRESSION DE DONNEES LORS D'UNE CONNEXION DE DONNEES (French)

Patent Assignee: NOKIA TELECOMMUNICATIONS OY (FI); KARI HANNU H (FI)

Author (Inventor): KARI HANNU H (FI)

Priority (Number,Kind,Date): FI 19962381 A 19960607

Applic (Number,Kind,Date): WO 1997FI345 A 19970603

Designated States: AP: GH KE LS MW SD SZ UG EP: AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE NA: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH HU IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG US UZ VN YU AM AZ BY KG KZ MD RU TJ TM OA: BF

Filing Details: Filing Language: English; Extended Kind(s): 130000

ECLA: H03M-007/30; H04L-012/56B; H04L-029/06; H04L-029/06C5; H04Q-007/22S3; H04W-028/06; T04L-029/06P; T04Q-007/22S3P

IPC + Level Value Position Status Version Action Source Office

v. 6 main: H04L-012/56

v. 6 : H04Q-007/30

v. 6 : H04Q-007/32

v. 8 adv : H03M-0007/30 A I R 20060101 20051008 M EP

v. 8 adv : H04L-0012/56 A I R 20060101 20051008 M EP

v. 8 adv : H04L-0029/06 A I R 20060101 20051008 M EP

v. 8 adv : H04W-0028/06 A I R 20090101 20090105 M EP

v. 8 core: H03M-0007/30 C I R 20060101 20051008 M EP

v. 8 core: H04L-0012/56 C I R 20060101 20051008 M EP

v. 8 core: H04L-0029/06 C I R 20060101 20051008 M EP

v. 8 core: H04W-0028/02 C I R 20090101 20090105 M EP

Date of Availability: 19971218 Examined printed without grant

Language of Document: English; French; German

Update Week: 200905 (First Week Added: 199801)

### World Intellectual Property Organization PCT (WO) Abstract(s):

WO 1997048212 A1 19971218 (English)

The invention relates to compressing and transmitting data on a connection between two parties in a telecommunication system comprising at least one slow transmission channel, such as the air interface Um of the radio network. The data to be transmitted are assembled into frames (F) comprising a header section (1) and a data section (2). Prior to transmission, at least the header (1) or the data section (2) of at least some of the frames (F) are compressed. The transmitting party has available at least two different compression algorithms and the receiving party has available at least two different decompression algorithms. The transmitting party compresses at least one section (1, 2) of at least some of the frames

(F) with at least two different algorithms, and transmits the frame (F) compressed with the algorithm that produced the best compression ratio.

WO 1997048212 A1 19971218 (French)

Cette invention concerne un procede de compression et de transmission de donnees lors d'une connexion reliant deux parties dans un systeme de telecommunications. Ce procede fait appel a au moins un canal de transmission lente tel que l'interface aerienne Um d'un reseau radio. Les donnees a transmettre sont assemblees en trames (F) qui comprennent une section en-tete (1) et une section donnees (2). Avant d'effectuer la transmission, on procede a la compression de la section en-tete (1) et/ou de la section donnees (2) d'au moins quelques trames (F). La partie qui transmet dispose d'au moins deux algorithmes de compression differents, tandis que la partie qui recoit dispose d'au moins deux algorithmes de decompression differents. La partie qui emit va compresser au moins une section (1, 2) d'au moins quelques trames (F) a l'aide de deux algorithmes differents, ou plus, puis transmettre la trame (F) comprimee a l'aide de l'algorithme qui a permis d'obtenir le meilleur taux de compression.

#### World Intellectual Property Organization PCT (WO) Legal Status

Number	Type	Date	Code	Text
WO 1997048212 A1		19971218	WO AK (+)	DESIGNATED STATES Designated States: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH HU IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG US UZ VN YU AM AZ BY KG KZ MD RU TJ TM Last Revised by EPO: 20030101 Update Week: Backfile
WO 1997048212 A1		19971218	WO AL (+)	DESIGNATED COUNTRIES FOR REGIONAL PATENTS Designated States: GH KE LS MW SD SZ UG AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF Last Revised by EPO: 20030101 Update Week: Backfile
WO 1997048212 A1		19980219	WO DFPE	REQUEST FOR PRELIMINARY EXAMINATION FILED PRIOR TO EXPIRATION OF 19TH MONTH FROM PRIORITY DATE (PCT APPLICATION FILED BEFORE 20040101) Last Revised by EPO: 20030101 Update Week: Backfile
WO 1997048212 A1		19980401	WO 121	EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION Last Revised by EPO: 20030101 Update Week: Backfile
WO 1997048212 A1		19981127	WO WWE (+)	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE Reference: EP 1997924060 -NoDate- Update Week: 200822
WO 1997048212 A1		19981207	WO	WIPO INFORMATION: ENTRY INTO NATIONAL



		WWE (+)	PHASE Reference: US 09202203 -NoDate- Update Week: 200745
WO 1997048212 A1	19990303	WO WWP (+)	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE Reference: EP 1997924060 -NoDate- Update Week: 200822
WO 1997048212 A1	19990408	WO REG/DE 8642	REFERENCE TO NATIONAL CODE Last Revised by EPO: 20030101 Update Week: Backfile
WO 1997048212 A1	19991207	WO NENP	NON-ENTRY INTO THE NATIONAL PHASE IN: Ref Country: CA Last Revised by EPO: 20030101 Update Week: Backfile

**World Intellectual Property Organization PCT (WO) Cited Reference(s):**

WO 1997048212 A1 19971218 CITED PATENTS:

SEA X WO 1994014273 A1 19940623

SEA Y US 5452287 A 19950919

SEA A US 5396228 A 19950307

SEA A EP 595406 A1 19940504

SEA A WO 1995002873 A1 19950126

INPADOC/Family and Legal Status

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INPADOC Family ID: 2313702